

TWO NEW SCIENCE CENTRES OPEN ACROSS THE COUNTRY

APR-JUN/1987

Capsule 5



DISTRICT SCIENCE CENTRE TIRUNELVELI

At the point where National Highway 7, the road that sweeps down from Kashmir to Kanyakumari, touches Tirunelveli in Tamil Nadu, has come up a small but exciting Science Centre with about 10,000 sq. ft. exhibition space, and a Science Park on 5 acres.



CAPSULE—2 gave you some details of this Centre. The Centre had been under trial run for some time; open to select bands of visitors, mainly students, for exhibit evaluation

and necessary modifications. Some modification and addition of exhibits had taken place in the meantime. Permanent auditorium was constructed and the old temporary one had been converted into Children's Play Corner. Permanent infrastructure for holding temporary exhibitions had also been built. An exhibit on 'Powers of Ten' had been added. The Science Park had been enriched with many new exhibits.

In the morning of February 27, 1987 the Centre was dedicated to the people of Tirunelveli by Shri P. V. Narasimha Rao, Union Minister of Human Resource Development, in presence of Dr. S. Varadarajan, Chief Consultant, Planning Commission.

(Contd. on page 3)

Top: The Minister breaks open the ceremonial coconut and the marble slab automatically unveils itself.

Bottom left: Youngsters entering the wonderland of science—DSC, Tirunelveli.

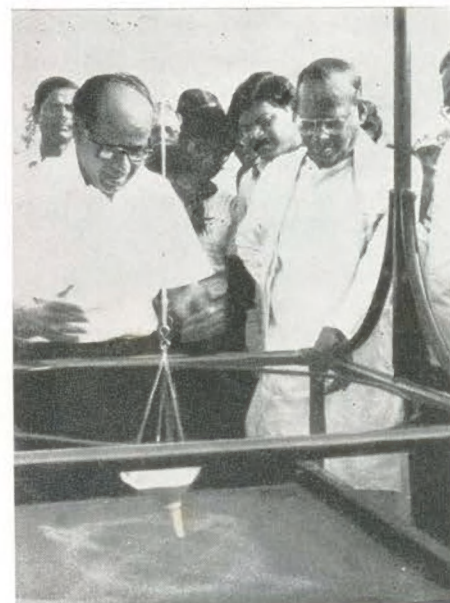
Bottom right: Shri J. B. Patnaik, the Chief Minister of Orissa and Dr. Saroj Ghose, Director General, NCSM at the "Lissajous Figure" exhibit in the Science Park of Regional Science Centre, Bhubaneswar.

NCSM SPEAKS

Quite a number of letters of felicitation arrive everyday at the CAPSULE Desk. Obviously, it is good to see CAPSULE being such appreciated. But what we want most is not just felicitations but interaction in a greater degree among likeminded organisations and individuals, in India and abroad.

So we reiterate our appeal to all concerned—use CAPSULE as a meet; send reports of your activities, (along with B/W photographs) for publication in the Quarterly and thus disseminate them to a wider audience; and present your specific problems, faced in your endeavours for science-propagation. Some organisation or individual may have some solutions.

CAPSULE assures room for all.



SCIENCE MUSEUM—a special feature

CELEBRATION OF THE FIRST NATIONAL SCIENCE DAY, COUNTRYWIDE

To recognise the social role of science, the Government of India has decided that February 28, 1987 would be observed as National Science Day, all over India. On this date in 1928, Prof. C. V. Raman discovered "Raman Effect", for which he was awarded the Nobel Prize. Sir Raman was the first Nobel laureate in science in Asia.

prizes and medals were there, to enthuse the winners.

National Science Centre, Delhi organised the exhibition, "C V Raman His Life & Works" while National Council for Science & Technology Communication, an organ of the Department of Science & Technology, Govt. of India, celebrated the Day at India International Centre, New Delhi.



National Council of Science Museums observed the Day in its own way.

All the Science Museums and Centres under NCSM all over India celebrated the Day by organising Science March and exhibition on life and works of Sir C. V. Raman. Programmes included popular lectures and various contests like "Sit and Draw", "Sit and Write" and open-house quiz, for children. Various



Column 1 Top: Sir C. V. Raman (1888 to 1970).

Column 2 from Top : Science Quiz at BITM, Calcutta. "Sit and Draw" at DSC, Purulia, Science March : Shrikrishna Science Centre, Patna.

Column 3 from Top : Science March : VITM, Bangalore.

Science March : DSC, Tirunelveli.

Exhibition on C. V. Raman at DSC, Gulbarga.

Bottom left & right : Science March at BITM Calcutta and Nehru Science Centre, Bombay.



Present among the distinguished were Shri P.V. Narasimha Rao, Union Minister of Human Resource Development and Shri K. R. Narayanan, Union Minister, of State for Science and Technology, Atomic Energy, Electronics, Space and Ocean Development.



SCIENCE MUSEUMS IN INDIA

(Contd. from page 1)

The Minister in his inaugural speech observed that people of rural India have a great zeal for assimilation of science technology but can ill afford scientific experimentation individually. A Science Centre can effectively bridge the gap. India needs many such Centres in nooks and corners of the land, said the Minister, and asserted that by the 8th Plan Period there will burgeon many such Centres.



DSC, Tirunelveli, the 8th in the chain of Science Museums and Centres under NCSM is now equipped with two exhibition halls—one on 'Treasures From Ocean' and the other on 'Popular Science' with a variety of exhibits on mathematics, light, energy, mechanics etc. The Children's Play Corner keeps children absorbed with simple, easy to manipulate kits and scientific toys. Creative Ability Centre provides opportunities to the students to explore their latent talents. Training Hall gives adults scope for experimenting in science. Everyday shows of scientific films and the library are there, to keep the visitors engrossed. A number of hands-on exhibits, aviary, and a pet area in the Science Park are attractive to all.



REGIONAL SCIENCE CENTRE BHUBANESWAR

The Science Park and the Mobile Science Exhibition of Regional Science Centre, Bhubaneswar were inaugurated by Shri J. B. Patnaik, the Chief Minister of Orissa, on February 28, 1987, happily coinciding the occasion with the nationwide celebration of the First National Science Day. The Centre also happens to be the first one in the State.

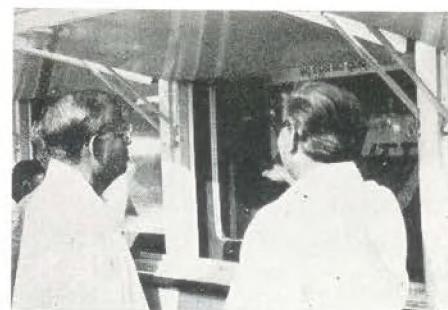


The Science Park, surrounding the main building of the Centre, accommodates 28 outdoor hands-on exhibits on motion, weightlessness, conventional and non-conventional energy, optics, sound, oscillation, inertia

Column 1 from Top: Dr. Saroj Ghose explaining to the Minister an exhibit in the Mathematics Gallery of DSC, Tirunelveli. The Minister, Dr. S. Varadarajan and Dr. Saroj Ghose discussing about the exhibit, "Sympathetic Oscillation" at DSC, Tirunelveli. Column 2 from Top: The Minister in the Ocean Gallery of DSC, Tirunelveli. Dr. Saroj Ghose demonstrating an exhibit in the Science Park of RSC, Bhubaneswar. Column 3 from Top: "Swing Quintal" and "Echo Tube" exhibits in the Science Park of RSC, Bhubaneswar. Shri Patnaik with Dr. Ghose having a look at the MSE exhibits.



and so on. During the next year, 30 more new exhibits will be installed in the Park. The Park also includes 3 aviaries, a mammal corner, a rabbit cage, a picnic spot and a fair ground. A museobus with 24 working and animated exhibits on Light & Sight is already on the road, holding exhibitions in remote rural areas of the State. Construction work for the main building of the Centre is nearing completion. The building will contain permanent exhibits on the Sun, solar phenomena, and on popular science, besides the regular features of a Science Centre like temporary exhibition hall, library, auditorium children's corner etc.



Hands on Science Education Programme, during the National Science & Technology Week.

Capitol Hill, USA April 05-11, 1987.

Association of Science-Technology Centres, USA

International Conference on "Technology, Education & Society: Future Directions".

Melbourne, Australia, May 10-17, 1987.

Royal Melbourne Institute of Technology, & RMIT Centenary International Conference, Australia.

Museum Management Programme University of Colorado, July 06-17, 1987.

University of Colorado, USA.

Indo-US Workshops on New Approaches to Planetarium Education.

Calcutta, March, 09-31, 1987.

Design and Construction of Outdoor Science Parks.

St. Louis, Missouri, April 27-29, 87

National Council of Science Museums and Indo-US Sub-Commission on Education and Culture

International Conference to Communicate the Birth Centenary of Prof. C. V. Raman, and Diamond Jubilee of the Discovery of Raman Effects.

Calcutta, sometime in 1988.

Indian Association for the Cultivation of Science, Calcutta.

International Conference on Computer Communication.

New Delhi, sometime in 1990.

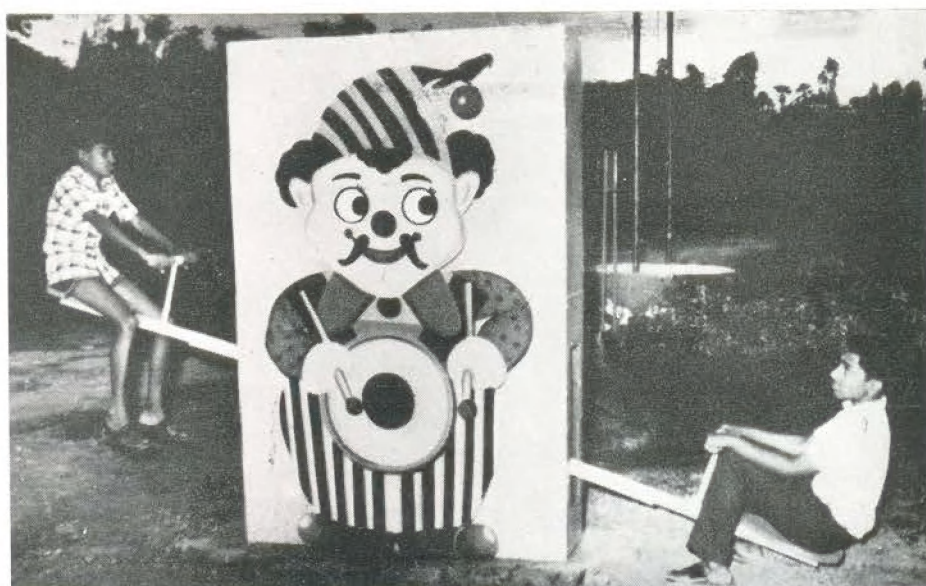
Department of Electronics, Govt. of India.

Workshop on Papier Mache Masks. Purulia, February 15-March 01, 1987 District Science Centre, Purulia, and Sharba Shanti Ayog, Purulia.

Mud-Brick Making Training Programme

Jahanabad and Lotpara, February 10-20, 1987

District Science Centre, Purulia.

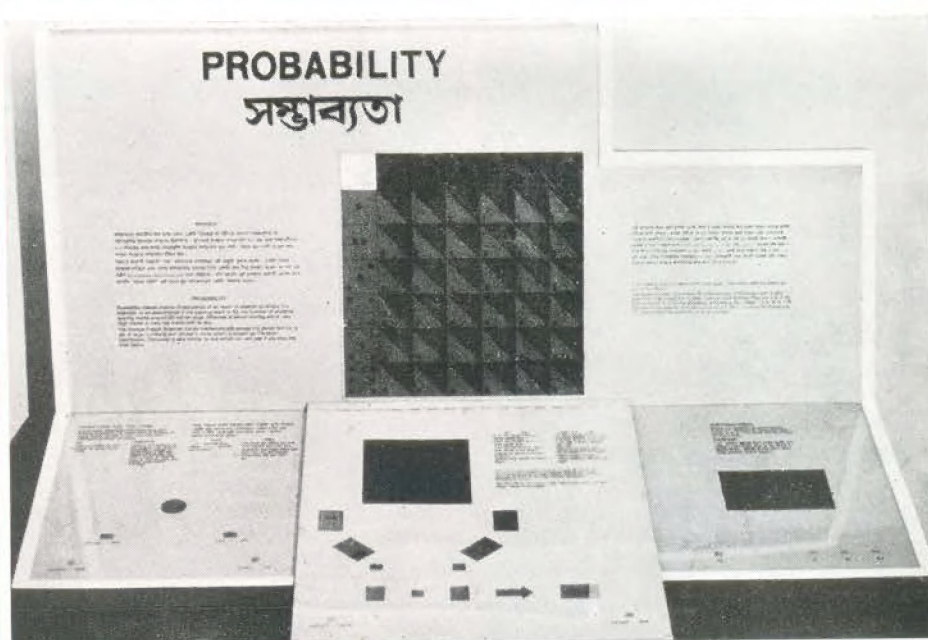


Amusing See-Saw

This simple exhibit, placed in the Science Park of DSC, Tirunelveli, is a great attraction to the children.

When the See-Saw is played, a multiplicity of functions starts: the

eyes roll from side to side, hands go up and down, moustache move up and down, and at the same time, the parrot is seen busy in singlemindedly trying to peck the apple!—All these happen, by simultaneous movements of interconnected chains hidden inside.



Recently developed and installed at Birla Industrial & Technological Museum, Calcutta, this exhibit elucidates the rather intriguing theory of probability.

What is "probability"? Probability means the chance of occurrence of an event in relation to others.

The famous French scientist Gauss mathematically proved the fact (on

a set of large numbers) and plotted a curve, known as Gaussian Distribution.

Three sections of this push-button and visual display electronic exhibit exemplify the theory in various ways: coin-toss game, question-answer game, and most interestingly, a game of dice, based on the results of which a Gaussian Curve is formed.

INDO-US WORKSHOP ON SCIENCE MUSEUMS

Organised by NCSM, under the auspices of the Indo-US Sub-Commission on Education & Culture, these workshops between the science museum professionals of India and the USA add an element of dynamism to the science museums' activities in both the countries, by way of mutual exchange of information and experiences.

The vth workshop on "Creative Endeavours with Exhibits & Programmes" was held in Bombay and Goa, during December 11-17, 1986. Six US professionals and their thirteen Indian counterparts extensively interacted in this workshop. It was observed that in USA, Science Demonstration Lectures are for general people, whereas in India it is largely for school students. The workshop explored the possibilities of synthesizing the two modes, to give it a universal appeal. The workshop examined science kits, teaching aids and teachers' training programmes developed in both the countries and recommended several effective measures for systematic development of activities, mass production and marketing of kits to reach maximum number of users. The workshop also discussed about development of more and more live demonstration programmes, showing interaction of art and science, for modification of general museum visitors as well as non formal education of school children.

Considering the growing use of computers, microprocessors, laser and other hi-tech products in U.S. museums, and the possibilities of their use in Indian science museums, it was considered appropriate to convene another workshop on "Appropriate Use of High Technology in Science Museums" in U.S.A., during September, 1987.

The vith Indo-US workshop on 'New Approaches to Planetarium



Education" was held at Calcutta during March 9-13, 1987. 21 experts comprising two from USA—Mr. Dennis Schatz of Pacific Science Centre, Seattle and Dr. Gerald Mallon of Methacton School District Planetarium, Penesylvania; and nineteen from India, representing Nehru Planetarium, Bombay; Birla Planetarium, Calcutta; Jawahar Planetarium, Allahabad; Birla Planetarium, Hyderabad; Birla Planetarium, Jaipur; Municipal Planetarium, Waarangal; and Science Museums and Centres under NCSM, extensively interacted in this 5 day workshop. Most interesting was the presentation of inflatable planetarium programmes before school groups. Students' keen participation reveals the high potential and various aspects of planetarium education in India.



Considering the positive impact of outdoor Science Parks on children's informal education, the science centres in the USA have taken a plan for establishing such Parks, starting with St. Louis Science Centre in Missouri and the New York Hall of Science in Queens. Studying the Indian successful experiments in this field (NCSM established India's first Science Park at Bombay in 1979; and now almost every science museum and Centre under NCSM has a Science Park) the science centres in the USA decided to borrow from Indian expertise, and for this purpose an workshop on "Design and Construction of Outdoor Science Park" is going to be held at St. Louis on April 27-29, 1987. Discussion will cover extensive topics like philosophy and concept of outdoor Science park, how to choose subject matter, mode of presentation, theories and effect on learning activities, design considerations, cost effectiveness, visitors service and so on.



Column 1: Animated response of the students to the lively demonstration lectures in the workshop on "Creative Endeavours with Exhibits & Programmes".

Top: Participants in a brainstorming session on Planetarium Education.

Column 2 from Top: Dr. Glen Dirren of Madison and Dr. Gerald Wheeler of Montana University conducting experiments in chemistry and physics, during the "Creative Endeavours" workshop.

Column 3: Dr. V. S. Venkatavardhan, Director of Nehru Planetarium in Bombay, emerging from the inflatable dome.

REGIONAL SCIENCE FAIRS AND CAMPS—MEET OF BUDDING SCIENTISTS



Science Fair had a modest start in 1967, with participants from Calcutta schools only. In May 1969, during the tenth anniversary of Birla Industrial and Technological Museum, All Bengal Science Fair was organised. In 1975 this annual event of BITM was given a new dimension by inclusion of eastern Indian States and by renaming it Eastern India Science Camp. Nature of the Fair also had a transition - from a mere display and demonstration of models to work-oriented teaching camp where students from under-developed regions are exposed to hands-on experiments, under guidance of experts in different disciplines of science.

Southern India Science Fair organised by VITM, Bangalore, had also developed in the same way. Inaugurated by His Excellency Shri A.N. Banerji, Governor of Karnataka, this year the Fair was held in Bangalore during February 24-28. 174 schools took part in it, with two students, one teacher and three exhibits from each school.

With the establishment of National Science Centre, Delhi, the vast nor-

thern region of India will also be covered.

These Fairs have a multi-tier, sort of pyramidal system—starting at district level, going up to State level and culminating at the Regional level. Thousands of budding scientists from schools and science clubs assemble every year in these Fairs, with their various ingenious projects and models. Science museums' other schemes like Creative Ability Centre and Science Demonstration Lectures also help the young inventors burgeon in these Fairs.



This year West Bengal State Science Fair was held in BITM premises from February 9-12. About 150 prize winning models and exhibits on science technology from District Science Fairs were displayed and demonstrated.



For the first time in its history the Eastern India Science Camp was shifted out of Calcutta in 1987. This year, hosted by the Govt. of Assam, Eastern India Science Camp was held at Judge's Court Field in Guwahati, from February 16-20. 265 participants from 139 schools and 14 science clubs with 200 models assembled there, to mark their creative talents. Exposure oriented training camps on aeromodelling, life-science and electronics were organised for 46 observers coming from all over eastern India.



Column 1 from Top : Visitors thronging at the entrance of SISF 1987. "Auto Stop and Start Water Pump"—a simple but novel exhibit in demonstration at the West Bengal State Science Fair 1987.

Column 2 from Top : The Kit for binary to decimal and vice versa conversion drew everybody's attention at the WBSSF 1987. Multipurpose Stove—an ingenious exhibit at the SISF 1987. Dr. H. Narasimhaiah, President of the National Education Society appreciating the exhibit.

Compound Tarang (Chakra—a thread-making machine) in display in the Eastern India Science Fair 1987.

Column 3 : "Gravity Transport" an exhibit from Kodali High School, Kerala. This was awarded the NCSM Scholarship for being the overall best exhibit at the Southern India Science Fair, 1987.

India a Festival of Science

On the fifth of a six-leg United States tour, "India : a Festival of Science" stayed for 3 months at Discovery Place in Charlotte. On March 22, 1987 The exhibition was over at Charlotte. The exhibition opens at Museum of Science in Boston, the ultimate site, on May 12, 1987.



Electric motorcycle, "Made in India"—an exhibit in the Festival.

The exhibit had been designated the "Travel Attraction of the year" by the Southeast Tourism Society. Around 116,000 visitors gave it a look, before the exhibit left the Queen's City.

It has been observed that most visitors to the India exhibit usually spent two and one half to three hours, examining the artefacts and watching the eight Indian artisans demonstrating their crafts.

The Geode : The Dream is Alive

The live transmission of three American space shuttle missions

enables the spectator to share the adventure of astronauts—ground training, lift-offs and landings, life in weightlessness, etc.

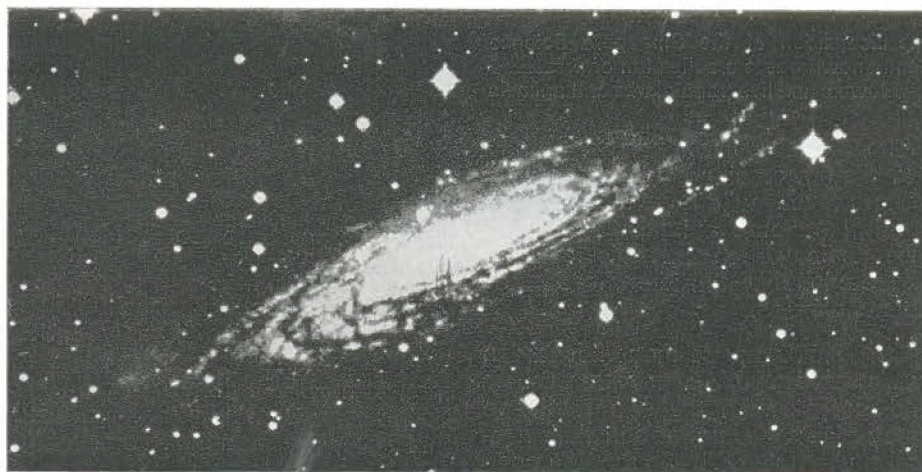
A space-shuttle is seen landing at the Kennedy Space Centre, in Florida. A second shuttle, on the launching pad, is ready for lift-off.

Once in orbit, the astronauts discover the spectacle of the Earth as seen from Space. Back in the shuttle, Omnimax camera follows the daily routine of the astronauts, in the main quarters which serve as living room, dining room, bed-room, and workshop. A communication satellite is deployed while the shuttle passes over the Alps. Some time later, Sally Ride, the first American Space-woman, launches a satellite for measuring the quantity of heat which the Earth receives and retains. This is the story of the "Dream is Alive", currently showing at the Geode, the new Omnimax theatre of the Centre for Science & Industry, France. According to all the astronauts who participated in the making of the film which is the result of a collaboration between NASA, Smithsonian's National Air and Space Museum, Imax Systems Corporation and Lockheed Corporation, provides a sensation very close to that actually experienced in the shuttle.

Bicycle Legs Show How Brain Works



Visitors to the Reuben H. Fleet Space Theater and Science Centre, San Diego, can pedal a bicycle by using only their fingers and a lot of brain power. "Bicycle Legs", a new permanent exhibit, consists of a Peugeot bike straddled by a pair of aluminium legs. Muscles on top and underneath the thigh are represented by pneumatic cylinders which contract and extend like a human leg. Air flow to the pneumatic cylinders is controlled by four buttons, which, when pressed in the correct sequence and with the correct timing, make the artificial legs pedal the bicycle.



Nehru Planetarium, Bombay

A Star is a Star is a Star... thus they named their Planetarium Programme No. 13. This programme, containing some of the highlights of their earlier major programmes strung together, begins with the arrival of a spacecraft from outer Space, along with extraterrestrial visitors.

The possibility of life elsewhere in the Universe is discussed in the context of the origin and evolution of the Universe. The Programme takes the audience for a random walk in the sky, to get familiarized with planets, stars and constellations. The Milky Way and other galaxies are explained. Explosive astronomical phenomena like supernovae are also dealt with.



HYPOTHESIS



RESEARCH



DISCOVERY

Singapore Science Centre Adds to Ecogarden



The Ecogarden at the Singapore Science Centre now houses a collection of preserved wildflowers and live pond plants and animals

The Singapore Science Centre has added a new facility with a collection of preserved wildflowers and live pond plants and animals to complement its Ecogarden and assist teachers and students in the identification of flora and fauna.

The 10,000-square-metre Ecogarden was created in 1983 to provide teachers and students with the opportunity to study plants and animals in their natural environment. The Ecogarden contains a small animal farm, local fruit trees, common roadside trees, shrubs and herbs, vegetable gardens and vines.

Dr. Leo Tan, Director of the Singapore Science Centre, said "The Ecogarden has been deliberately left undisturbed and hence visitors should not be surprised to see insect-populated trees and vegetables or overgrown and untidy areas."



Birth of a Science Technology Centre in Turkey

The Scientific and Technological Research Council of Turkey (TUBITAK) has embarked upon a programme for the establishment of a Science Technology Centre, and also a Natural History Museum in Ankara.

Meanwhile, steps have been taken to start their museum library, collect related literature and to learn and benefit from the experience of similar institutions worldwide.

Organisations having publications on museology and related subjects may go into an exchange programme with TUBITAK Science and Technology Centre and Natural History Museum, Ataturk Bul. 219/2, Kavakliders 06100 Ankara, TURKEY.

THE NEXT...

NCSM pays homage to the memory of Sir C. V. Raman, the great son of India, by establishing a Science Centre at Nagpur and naming it after him.

The Science Park and the Mobile Science Exhibition Service of the Centre will be inaugurated shortly.

CAPSULE-6 will give you the details.

WE NEED....

EDITOR CAPSULE is looking forward to your sending by April 30, 1987, publication materials for CAPSULE-6. Please send short notes, photographs, problems, suggestions, cartoons and puzzles.



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